PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project	
Rock Creek Watershed Assessment and Restoration Project	
BPA project number	20119
Contract renewal date (mm/yyyy)	
Multiple actions? (indicate Yes or No)	
Business name of agency, institution or organization requesting funding	
Yakama Indian Nation Fisheries	
Business acronym (if appropriate)	YIN
Proposal contact person or principal investigator:	
Name	Lynn Hatcher, Fisheries Manager
Mailing address	P.O. Box 151, Fort Road
City, ST Zip	Toppenish, WA 98948
Phone	509/865-6262
Fax	509/865-6293
Email address	yinfish@yakama.com
NPPC Program Measure Number(s) which this project addresses	
7.1, 7.6, 7.7, 7.8	
FWS/NMFS Biological Opinion Number(s) which this project addresses	
Other planning document references	
The project supports the goals and objectives of *Wy Kan Ush Me Wa Kush Wit* (executive summary *v*). The project's focus of gathering baseline information and addressing land management effects in the drainage corresponds to the strategies outlined in the Biological Perspective (section 3) and Technical Recommendations (section 5B) of *Wy Kan Ush Me Wa Kush Wit*.	
Short description	
Conduct Watershed Analysis in Rock Creek drainage to determine conditions of the stream habitat, adjacent riparian stands, limiting factors to fish and wildlife production, and land management effect.	
Target species	
Mid-Columbia steelhead and resident rainbow trout	

Section 2. Sorting and evaluation

Subbasin
Rock Creek watershed an independent tributary to the Columbia River Rock (tributaries include: Quartz Creek, Box Canyon, Dairy Canyon, Harrison Creek, Spring Creek, Luna

Gulch, Badger Gulch).

Evaluation Process Sort

CBFWA caucus		CBFWA eval. process		ISRP project type	
X one or more caucus		If your project fits either of these processes, X one or both		X one or more categories	
X	Anadromous fish	X	Multi-year (milestone-based evaluation)	X	Watershed councils/model watersheds
X	Resident Fish	X	Watershed project eval.	X	Information dissemination
X	Wildlife				Operation & maintenance
					New construction
				X	Research & monitoring
				X	Implementation & mgmt
					Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Coordinate startup of watershed assessment in Rock Creek	A	Notify major landowners and agencies of intent to conduct watershed assessment. Solicit participation.
		B	Acquire map products, obtain GIS support services and determine analysts for assessment.
2	Conduct assessment of watershed conditions	A	Assess and analyze fisheries habitat conditions.
		B	Assess and analyze stream channel conditions.
		C	Assess and analyze water quality conditions.
		D	Assess and analyze riparian conditions.
		E	Assess and analyze surface erosion hazards.
		F	Assess and analyze mass wasting hazards.
		G	Assess and analyze hydrologic change hazards.
		H	Assess and analyze grazing hazards/effects.
		I	Assess and analyze agricultural practices for hazards/effects.
		J	Assess and analyze wildlife habitat conditions.
3	Synthesize assessment products as to the overall condition of the watershed.	A	Interaction between analysts to fully describe conditions in the watershed and determine cause and effect relationships.
4	Develop land management prescriptions to address identified problems.	A	Form land management prescription team.
		B	Develop land management prescriptions to address problems in the watershed and allow recovery of resources.

Objective schedules and costs

Obj #	Start date	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %

	mm/yyyy				
1	10/99	2/2000			15
2	2/2000	7/2000			65
3	7/2000	8/2000		Assessment of resource conditions and hazards	5
4	8/2000	10/2000		Land management prescriptions will be developed to improve resource conditions	15
				Total	100

Schedule constraints
None anticipated. Some parts of the drainage may not receive full assessment or prescriptive measures if landowners are unwilling to participate. Unusual weather conditions may also hinder assessment of watershed conditions.
Completion date
2005

Section 5. Budget

FY99 project budget (BPA obligated):	$

FY2000 budget by line item

Item	**Note**	**% of total**	**FY2000 ($)**
Personnel	Watershed team leader, book keeper	22.4	53820
Fringe benefits		5.6	13616
Supplies, materials, non-expendable property	Office and field supplies, computer, software, field equipment	6.0	14320
Operations & maintenance	Vehicle rental, office space, utilities, insurance, conference room rental	5.8	13850
Capital acquisitions or improvements (e.g. land, buildings, major equip.)			
NEPA costs			
Construction-related support			
PIT tags	# of tags:		

Travel		0.3	750
Indirect costs		10.7	25631
Subcontractor	consultants, GIS services	49.2	118330
Other			
TOTAL BPA REQUESTED BUDGET			240317

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount ($)
Total project cost (including BPA portion)			

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget	289000	305000	182000	119000

Section 6. References

Watershed?	Reference
X	Washington Forest Practice Board. 1995. Standard methology for conducting watershed analysis, Version 3.0. Washington Department of Natural Resources, Forest Practices Division. Olympia, WA.
X	U.S. Departments of Interior and Agriculture. 1995. Ecosystem analysis at the watershed scale: federal guide for watershed analysis. Regional Ecosystem Office. Portland, OR.

PART II - NARRATIVE

Section 7. Abstract

The overall goal of the project is assessment of limiting factors to fish and wildlife in the drainage, and correction of those problems. The overall objectives of the project include acquisition of existing information, further assessment of conditions in the watershed, development of prescriptions to allow resource recovery, implementation of prescriptions, development of restoration plans to accelerate recovery and implementation of restoration work. The project seeks to work closely with landowners and governmental agencies. Through this strategy, the project supports the goals, policies and objectives of the FWP (sections 7.1, 7.6, 7.7, 7.8).

In the first year of this project, the objectives of the work will be to compile existing information, assess stream and riparian conditions, determine effects of natural processes and land management on fish and wildlife resources, and develop land management prescriptions that allow recovery of resources. In future years, the project plans to direct efforts toward restoration and recovery of habitats, and thereby enhance fish and wildlife production in the drainage.

Section 8. Project description

a. Technical and/or scientific background

Rock Creek is an independent right bank tributary to the Columbia River. It enters the Columbia at river mile 228.5. Tributaries to Rock Creek include Harrison Creek, Spring Creek, Quartz Creek, Dairy Canyon, Box Canyon, upper Rock Creek, Badger Gulch and Luna Gulch. The stream currently supports both anadromous and resident wild salmonids (steelhead and rainbow trout). Historical accounts indicate other fall spawning anadromous species also used the drainage (chinook and/or coho). In-stream habitat, water quality and riparian functions in the drainage have been degraded by land management practices. Problems affecting fish production that have been observed or identified in the basin include excessive summer stream temperatures, fine sediment delivery, lack of adequate large woody debris recruitment, inadequate summer flows, limited pool rearing area and poor spawning gravel quantity and quality.

The project supports the habitat goals, policies and objectives of the FWP (7.6). The project will be assessing wild and naturally spawning populations and developing prescriptions to allow recovery of these stocks (FWP 7.1D). Part of the focus of the project is watershed assessment, watershed management and collaboration with local and governmental managers (FWP 7.6C). The project will be coordinating work with private landowners and state and federal agencies (FWP 7.7, 7.8)

b. Rationale and significance to Regional Programs

The project supports the habitat goals, policies and objectives of the FWP (7.6). The project will be assessing wild and naturally spawning populations and developing prescriptions to allow recovery of these stocks (FWP 7.1D). Rock Creek supports wild and naturally spawning populations. This project proposes to evaluate limiting factors on these populations and encourage land practices that allow recovery of habitat critical for production. Future years of this project will be focused on restoration efforts to accelerate habitat and water quality recovery. Part of the focus of this project is watershed assessment, watershed management and collaboration with local and governmental managers (FWP 7.6C). Through assessment, limiting factors to habitat can be delineated and prioritized. The assessment will also identify land management effects that are limiting production. Development of prescriptions should prevent further degradation of existing conditions and lead to recovery over time. The project will be coordinating work with private landowners and state and federal agencies (FWP 7.7, 7.8).

c. Relationships to other projects

This project will further identify conditions in the Rock Creek drainage and develop prescriptions to allow recovery of the fish and wildlife resources. Information gained from this project can be applied to other similar drainages in the Columbia Basin. Recovery of fish and wildlife populations in Rock Creek can augment total production in the Basin. This input to the basin is important for overall Columbia production and maintenance of genetic diversity.

This project seeks to work cooperatively with landowners and other agency personnel. Through cooperation, the assessment should be more efficient and cost effective. Work loads can be shared. Interaction with other interested parties should also allow for a better understanding of land management and resource protection perspectives.

d. Project history (for ongoing projects)

New project, no previous history.

e. Proposal objectives

For the first year of this project, watershed assessment and development of land management prescriptions are the focus. Four objectives are proposed to accomplish this work. The objectives are designed to provide a clear picture of conditions in the watershed, causes and effects of conditions, coordinate project work with other interested parties and measures (prescriptions) to prevent further degradation and allow recovery.

Objective 1- Coordinate startup of watershed assessment in Rock Creek. Prior to initiating the assessment, logistics and coordination will need to be accomplished. Cooperation and coordination will be sought with landowners and other agencies to facilitate completion of the assessment. Support materials such as maps, existing information on the drainage and GIS capabilities will also be needed.

Objective 2- Conduct assessment of watershed conditions. The assessment team will evaluate stream, riparian and landscape conditions and how they affect the fish and wildlife resources. Assessments would follow protocol established in Washington State Watershed Analysis Manual (Version 3.0 or newer, 1995) and the Federal Ecosystem Analysis at the Watershed Scale, Federal Guide for Watershed Analysis (1995). Analysts will evaluate conditions with existing information and acquire additional information/data, as needed, to determine cause and effect relationships in the watershed. Interaction between analysts may be necessary during the assessment phase and will be promoted to increase understanding of the processes in the basin. This should also make the assessment more efficient with sharing of some tasks.

Objective 3- Synthesize assessment products as to the overall condition of the watershed. Upon completion of separate assessments, the analysts will meet to discuss findings. Each assessment will be presented to the group and be open for discussion. Through this approach, linkages between resource conditions and landscape hazards can be established. This dialogue should also

foster a comprehensive understanding and description of processes in the drainage. All assessment products, findings and the synthesis will be incorporated into an assessment report.

Objective 4- Develop land management prescriptions to address identified problems. From the findings of the watershed assessment, solutions to identified problems will need to be developed. A team will be formed to determine prescriptions that will prevent further decline in habitat conditions and allow recovery. Some members of the assessment group should be involved in this phase to ensure that site specific knowledge is available for prescription formulation. The prescriptions will be tailored to adjusting land management practices to the degree necessary to allow fish and wildlife resource recovery. The prescriptions will be compiled and their linkage to specific stream segments and areas in the watershed/landscape identified. Both the assessment products and the land management prescriptions will be incorporated into a final watershed assessment report.

f. Methods

The Rock Creek Watershed Assessment and Restoration Project proposes to evaluate conditions in the watershed and implement measures to ensure that fish and wildlife resources are not further impacted and allowed to recover. The first phase of this project is outlined for F.Y. 2000. Through assessment of the watershed, existing conditions can be quantified and causes determined. Assessment will be conducted utilizing accepted State and Federal methodology. Once conditions and causes are identified, prescriptions will be developed to address limiting factors in the watershed. The tasks follow a logical order of progression; acquire existing information, conduct further investigations to determine conditions and causes, synthesize the information to fully and comprehensively describe watershed processes, and develop prescriptions to address problems and allow resource recovery. The following is a detailed summary of the planned activities and tasks of the assessment work:

Task 1A- Notify major landowners and agencies of intent to conduct watershed assessment. Solicit participation.

Participation of key agency personnel and landowners is important to the success of this project. Through cooperation, the assessment can be more effective and productive. The work load can be shared. Access to areas for assessment can be facilitated with landowner cooperation and permission. Watershed knowledge and information is also more easily attained through cooperative, interactive participation of landowners and agency personnel.

Task 1B- Acquire map products, obtain GIS support services and determine analysts for assessment.

The assessment will be more efficient with good initial mapping products and support services. GIS capabilities will allow clear and functionable map products both for beginning assessment and for reports. Analysts will be selected by their ability, expertise in their field, and qualifications to complete watershed assessment work. Analysts will need to have a strong understanding of watershed processes and their effects to fish and

wildlife production.

Task 2A- Assess and analyze fisheries habitat conditions.

Analyst will follow accepted protocol for evaluation of fisheries habitat conditions. The assessment will determine fish distribution in the watershed, quality and quantity of habitat conditions, identify critical areas or stream segments for fisheries production and determine the vulnerability of the habitat to natural and land management effects. Vulnerability calls for fisheries habitat will be developed.

Task 2B- Assess and analyze stream channel conditions.

Analyst will follow accepted protocol for evaluation of stream channel conditions. The channel analyst will develop a stream segment classification map. The assessment will determine channel conditions throughout the watershed and their vulnerability to natural and land management effects. Vulnerability calls for the stream channel will be developed.

Task 2C- Assess and analyze water quality conditions.

Analyst will follow accepted protocol for evaluation of water quality conditions. The water quality analyst will determine water quality conditions in the watershed and their cause. The water quality analyst will also determine the location of wetlands and their prominence in the watershed. Vulnerability calls for water quality will be developed.

Task 2D- Assess and analyze riparian conditions.

Analyst will follow accepted protocol for evaluation of riparian conditions. The riparian analyst will determine riparian stand conditions and their ability to provide canopy cover, large woody debris recruitment and other functions to the stream system. Hazard calls for the riparian area will be developed.

Task 2E- Assess and analyze surface erosion hazards.

Analyst will follow accepted protocol for evaluation of surface erosion hazards. The surface erosion analyst will evaluate the watershed for delivery of sediment to the stream system. The road system and other ground disturbing activities (logging, agriculture, grazing) will be assessed for their ability to deliver sediment. Hazard calls for surface erosion will be developed.

Task 2F- Assess and analyze mass wasting hazards.

Analyst will follow accepted protocol for evaluation of mass wasting hazards. The mass wasting analyst will review geology information of the drainage. Aerial photos will be studied to identify mass wasting features. Additional field investigation will be conducted to delineate mass wasting features and determine activities that could increase their intensity or frequency. Hazard calls for mass wasting will be developed.

Task 2G- Assess and analyze hydrologic change hazards.

Analyst will follow accepted protocol for evaluation of land management effects on hydrology. The analyst will review any available flow records. The analyst will also examine the vegetative conditions in the watershed and land management activities that may influence hydrology. The analyst will evaluate changes in the landscape that could affect the magnitude or timing of flows; both peak and summer lows. Hazard calls for hydrologic change will be developed.

Task 2H- Assess and analyze grazing hazards/effects.

The analyst will develop protocol for assessing grazing effects on the watershed. The analyst will review grazing history and intensity in the watershed. The analyst will also examine riparian conditions and determine if grazing is negatively affecting riparian areas and streams. Hazard calls for grazing will be developed.

Task 2I- Assess and analyze agricultural practices for hazards/effects.

The analyst will develop protocol for assessing the effects of agricultural practices on the watershed. The analyst will identify the location and type of all agricultural practices in the drainage. The analyst will determine the effect agricultural practices are having on the stream system. Hazard calls for agricultural practices will be developed.

Task 2J- Assess and analyze wildlife habitat conditions.

The analyst will use the protocol established by the Federal Watershed Analysis as a guide in conducting the assessment. The analyst will further develop protocol to effectively assess the drainage for wildlife habitat conditions. The analyst will review all existing information on wildlife use in the drainage and habitat requirements. The analyst will examine vegetative conditions in the watershed. Additional field work will be conducted to determine wildlife distribution and habitat requirements. Vulnerability calls for wildlife will be developed.

Task 3A- Interaction between analysts to fully describe conditions in the watershed and determine cause and effect relationships.

Upon completion of separate assessments, the analysts will meet to discuss findings. Each assessment will be presented to the group and be open for discussion. Through this approach, linkages between resource conditions and landscape hazards will be established. This dialogue should also foster a comprehensive understanding and description of processes in the drainage. All assessment products, findings and the synthesis will be incorporated into an assessment report. Prescription rule calls and causal mechanism reports will be completed by the assessment team for handoff to the prescription team.

Task 4A- Form land management prescription team.

A team will be formed to develop recommendations and prescriptions to address watershed problems. The team will consist of resource managers, landowners and watershed analysts.

Task 4B- Develop land management prescriptions to address problems in the watershed and allow recovery of resources.

The prescription team will develop land management practices that will protect and allow recovery of fish and wildlife resources. Prescriptions will be tailored to identified situations in the assessment. Prescriptions will be developed that have a high confidence of enabling resources to recover.

The prescriptions will be compiled and their linkage to specific stream segments and areas in the watershed/landscape identified. Both the assessment products and the land management prescriptions will be incorporated into a final watershed assessment report.

g. Facilities and equipment

The watershed assessment project will require facilities and equipment for the team leader. This person will need office space, a computer and necessary software, vehicle and field and office materials. Primary office station will be in Toppenish. Facilities and equipment may be also be necessary for assessment personnel, dependent upon whether subcontracted or conducted with agency personnel. Conference rooms may also need to be rented for assessment and prescription team meetings.

h. Budget

The first year's budget is largely to pay for a watershed team leader (to collaborate and work with land owners and other governmental managers, oversee and organize the watershed assessment team, and to write assessment and prescription reports) and support services (office personnel, consultants, and GIS support) that will perform the watershed assessment. Outyear costs will pay for restoration projects that will address limiting factors found during the watershed assessment. Hopefully, these efforts will be augmented by other agency restoration work, such as, NRCS soil errosion control projects, WDOE water quality assessment, and WDFW habitat restoration.

Section 9. Key personnel

The Yakama Indian Nation employs the largest professional natural resources staff of any tribal government. Fully-qualified scientific, technical and support staff are available or can be hired to carry out all tasks under this project.

Section 10. Information/technology transfer

Products from this project including compilation of assessment reports, their map products and findings, causal mechanism reports and land management prescriptions will be incorporated into the final watershed assessment report. This report will be available to interested agencies and the public. The report and findings will be valuable to other agencies and landowners considering watershed assessments. The findings and prescriptions may also be applied to similar watersheds in the Columbia Basin. The cooperative and collaborative nature of this project should foster working relations with local landowners and other governmental agencies.

Congratulations!